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ABSTRACT

This report of a study on the status of vocational education and training in the Republic of Korea is divided into four parts. Part 1 describes problems due to the inability of the educational system to keep up with demand for qualified personnel. Part 2 focuses on the status of occupational training in Korea with specific reference to innovative efforts presently being made. A discussion of occupational education includes its objectives, contents of the occupational programme, organizations (formal and non-formal categories), enrollment trends, and entry requirements. Discussion of occupational training covers its status, objectives, contents of occupational training programmes (audience, curriculum, and materials), and organizations. Part 3 concerns the National Skill Certification System and its objectives and structure. Other topics include numbers of fields and certifications and incentives to certified workers. Part 4 outlines five suggested directions of vocational education and training efforts. (YLB)

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SURVEYS AND STUDIES IN ADULT EDUCATION

CURRENT STATUS OF VOCATIONAL EDUCATION AND TRAINING IN THE REPUBLIC OF KOREA

by

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Korean Educational Development Institute

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I. PROBLEMS

Over the last two decades, Korea has seen a startling economic growth as the result of having thrown its full weight behind industrial development. This development is often ascribed to abundant labour force as it might be true in the past. What is apparent today, however, is that the fact that the nation is rich in labour force has no claim to be a major factor for development. Being at the threshold of a highly industrialized society, Korea sees new needs looming over the horizon. The shift of industrial structure - from labour-intensive to technology or brain-intensive industry - necessarily numbers.

Although the role of education has been stressed in the production of skilled human resource, educational systems are yet unable to keep up with its burgeoning demand, let alone qualitative aspect. The inertia of educational systems in responding to new needs proportionately heightens concern for out-of-school programmes.

Policy is gradually oriented toward an ardent advocation of out-of-school programmes. A good example is the effort to root out the present practice of emphasizing educational attainment up to a certain level as the minimum entry requirement to jobs in favour of competency-based selection. A similar trend is seen in the institutional dimension. Besides the school ladder system of 6-3-3-4 pattern, there are other channels such as civic school and higher civic school, with the provision for a national qualification system designed to qualify those completing such informal cycles as the graduates of formal systems at corresponding levels. This system also applies to trade school, trade high school and air and correspondence high schools.

Policy is being promoted along the line of providing earlier exposure to vocational programmes for youngsters unable to continue schooling. In-plant training centres, both public and private, have been in operation and vocational high schools have run an adjunct programme of similar nature to increase their employability. Industrial firms are encouraged to establish vocational schools together with occupational programmes for women. For those who have no access to these programmes, there are community and privately sponsored programmes of productive skills. Yet their skills lack in proficiency, hardly warranting employment to support their living and there is need for the continuing upgrading of their skills. To this end, it is necessary to provide them a reasonable access to the programmes of vocational training institutes, and in-plant training. In this response, national certification system was institutionalized in 1975 to stimulate their motivation for continuing upgrading of their skills by providing opportunities for upward mobility on a competency basis.

As of 1977, the total number of employees in Korea is 12,929,002, which accounts for 35.5% of the total population (36,436,016). Those employed in production industries number 3,339,218, occupying 25.8% of the total employment.(1) An examination of its composition by educational attainment shows that 11.6% of the total employment have not finished the primary cycle and primary school graduates occupy 41.8%. Middle school graduates account for 28.1%, high school graduates for 16.3% and junior college graduates for 2.2%. It should be noticed that primary school graduates and below that level account for 53.4%. The problem is that there is no systematic, sustained effort to train them, despite the fact that they constitute a valuable human resource when their potentials are fully tapped for productive works.

(1) Economic Planning Boards, Housing and Population Census, 1977, p. 77.

What follows is the status of occupational training in Korea, with specific reference to the efforts presently being made to innovate them.

II. STATUS OF OCCUPATIONAL TRAINING IN KOREA

1. Occupational education

The occupational education means a range of programmes to teach knowledge and skills related to specific jobs that are offered by schools and non-school organizations. In the formal school system, vocational high schools and junior colleges offer such programmes. But a much larger segment of training is carried out by voluntary social organizations, special courses attached to vocational high schools, youth training schools, adult classes and in-plant training centres.

(1) The objectives of occupational education

The objectives of occupational education vary depending on the types of programmes dealt with and the school level. Besides the vocational high schools (grades 10-12), civic schools and higher civic schools run occupational training programmes relevant to primary education.

(1) Formal schooling

1. Agricultural high schools produce rural guiders who are well versant with farming techniques and agricultural management.

2. Technical high schools produce skilled workers proficient in basic skills and knowledge which constitute the foundation for adapting to specific industrial needs.

3. Commercial high schools offer programmes in basic theory and practice of accounting, management and clerical work, for those to be engaged in this field.

4. Fishery and marine high schools offer programmes covering basic theory and practice of fishery and marine affairs that are necessary to work as skilled workers in specific areas related thereto.

5. Domestic arts high schools provide exposure to theory and practice of basic skills related to home life (clothing, food, health and nursing).

(2) Subformal school

The trade and higher trade schools provide general and civic education and occupational programmes that would lead them to simple production work. The occupational programme comprises similar fields to those of vocational high schools such as agriculture, industry, commerce, fishery, home economics, etc.

(3) Non-formal occupational education

The occupational training in the out-of-school sector is rich in diversity, defying classification into clear-cut categories. Coming uppermost is the special programme called "youth occupational school" offered by vocational high schools. This programme was designed for the out-of-school youngsters with the purpose of providing general and civic education plus specific skills that will enable them to earn their own living. Besides, there are a variety of private training organizations.

(2) Contents of the occupational programme

The contents of the occupational programme in the formal system are in compliance with the curriculum set forth by law. In the case of the non-formal system, they are stipulated by provincial Boards of Education within terms set forth by the law.

The occupational programme is broadly divided into two components - common and major courses. The former constitutes the foundation, consisting of subjects all students must complete, whereas the latter provides exposure to knowledge and skills in their respective field of specialization with an appropriate integration of theory and practice (see Table 1).

Table 1. Subject-matters for each course

	Common courses	Major courses
Subjects	Requirement National ethics, Korean language, politics, economy, mathematics, science, physical education and military drill Electives Music, fine arts, Chinese, foreign language, industrial arts and home economics	Agriculture, industry, commerce, fishery, marine and home economics
Credit hours	66-102 (32.4%-50.0%)	102-156 (50.0%-70.3%)
Total hours	204-222	

Source: Ministry of Education, Vocational High School Curricula, 1977.

The number of class hours per week. Each class hour lasts 50 minutes.

The subject-matters in the major course are given in Table 2, which are also divided into the required and elective ones. The major subjects occupy the largest proportion of the total credit hours in fishery and marine (59%-70%) and industry (56%-70%).

The subjects taught in trade and higher trade schools are much similar to those of vocational high schools both in common and major courses except that the former is at the elementary level.

The special programme attached to the vocational high schools, due to its nature catering to employed youngsters, requires two-thirds of the total credit hours of vocational high schools with heavier weight given to theory. Practice is replaced by on-the-site work.

Table 2. Major subjects

Courses	Agriculture	Industry	Commerce	Fishery, marine	Home economics
Subject-matters	Introduction to agriculture, livestock, horticulture, sericulture, agr. civil eng., agr. mech. eng., agr. manufacturing, agr. home economics	Mech. eng., civil eng., electricity, communication, electronics, textile, mining, metallic printing, engineering, auto-mechanics, sericulture, food processing, ship-building, steel manuf.	Commerce, management, commercial law, book-keeping, accounting, typing, EDP, practice	Fishery, breeding, fishery processing, engineering, navigation, communication	Introducing home economics, cooking, cloth-making, nursing
Credit hours	102-156 (46-70.3)	114-156 (56-70.3)	102-156 (46-70.3)	122-156 (59-70.3)	102-156 (46-70.3)

(3) Organizations of occupational education

Organizations engaged in occupational education at the secondary level are divided into formal and non-formal categories; the former is under the direct supervision of the Ministry of Education and the latter is richer in variety with a greater degree of flexibility. Included in the formal category are vocational high schools, higher civic schools and trade and higher trade schools. Table 3 has shown the increasing or declining trend of these schools.

Table 3. The numbers of schools offering occupational programmes

Class \ Years	69	70	73	74	75	76	77	78
Vocational high school	444	481	563	476	479	484	499	536
Higher civic school	362	336	264	257	244	223	201	178
Trade school	69	64	61	62	60	51	50	50
Higher trade school	66	68	53	48	48	44	41	35
Total	941	949	941	843	831	802	791	799

As seen in Table 3, the number of vocational high schools has increased by 20% over that of 1969, while higher civic schools and trade and higher trade schools have been on a decreasing trend.

Table 4. Numbers of non-formal occupational programmes

Schools \ Years	74	75	76	77	78
Air and correspondence high school	11	36	39	39	39
Youth occupational school	68	61	61	33	26
Special classes within industry	-	-	-	26	57
Private institutes	2,807	2,977	3,390	3,103	3,465
Total	2,886	3,074	3,490	3,201	3,530

Table 4 shows the trend of non-formal occupational programmes, including air and correspondence high schools, youth occupational schools, special classes in industry and private institutions. As a whole, they have increased in number by 22% over that of 1974. The air and correspondence schools increased 2.5 times as of 1978, the special classes 1.2 times and private institutions by 23%. By contrast, youth occupational schools have been on a decreasing trend.

The number of students going through the occupational programme of formal system increased 1.7 times during the period of 1970-1977. In particular, 1977 saw an increase of 10% over that of the preceding year, as favourably compared with an increase of 6.5% in academic high schools. This is the result of greater emphasis on vocational education in policy formulation in recent years.

Despite such a marked increase in the number of students, those presently enrolled in vocational high schools form 41.1% of the total students of high schools (1,350,600 in 1977). As shown in Table 6, it is in air and correspondence high schools and private institutes that students have shown a steady increase in number. The air and correspondence high schools presently enrol students more than 2.7 times over that of 1974 when the first batch of students entered. A sharp increase of enrolment is also recorded in private occupational training institutes. The enrolment which numbered 190,448 in 1974 now counts 278,950, an increase of more than 46%.

The enrolment of youth occupational schools has shown a declining trend and this may be the result of the policy for popularization of secondary education. The entry requirements and the durations of training are outlined in Table 7. The minimum requirement of education is the completion of primary cycle, irrespective of whether it is a formal or non-formal system. In the case of vocational high school, entry requirement is stipulated by law since it constitutes a part of formal system under the direct supervision of the Ministry of Education. The evening class of vocational high schools is intended for the employed middle school graduates. As shown in Table 8, the vocational high school which offers evening classes, account for 26% of the total. At present, no vocational high school is fully equipped with accommodation facilities for resident students.

Those who have finished higher civic schools or trade schools are entitled to the examination which qualifies them to apply for admission to high schools. The finishers of higher trade schools are qualified for admission to colleges after they pass the qualifying examination. These schools are also classified according to whether they offer evening class or not (see Table 9).

Table 5. The trends of students and teachers in formal system

Years / Class	69		70		73		74	
	Students	Teachers	Students	Teachers	Students	Teachers	Students	Teachers
Vocational school	235,809	8,970	275,015	10,009	428,212	14,898	451,032	13,996
Higher civic school	76,301	2,845	72,338	2,765	51,866	2,178	52,532	2,057
Trade school	13,326	522	13,126	522	11,123	486	11,867	509
Higher trade school	10,466	567	12,876	649	12,529	584	12,991	566
Total	335,902	12,904	373,355	13,945	503,721	18,146	528,422	17,128

Years / Class	75		76		77	
	Students	Teachers	Students	Teachers	Students	Teachers
Vocational school	474,868	15,340	507,430	16,536	555,493	17,771
Higher civic school	52,512	2,161	47,545	1,902	43,772	1,703
Trade school	12,928	538	12,851	526	12,023	467
Higher trade school	13,386	601	13,414	562	13,436	523
Total	553,694	18,640	581,240	19,526	624,724	20,464

Table 6. Enrolment trend of non-formal occupational programmes

Schools / Years	74	76	77
Air and correspondence high school	5,861	15,932	21,579
Youth occupational school (1)	7,286	4,928	3,415
Special classes within industry	-	-	3,564
Private occupational training institute (2)	190,448	240,611	278,950
Total	203,595	261,471	307,508

Note: (1) The number of graduates.
(2) The number enrolled.

Table 7. Entry requirement and duration

Schools	Entry requirement	Duration
Vocational high school	Middle school graduates, those qualified as having equivalent quality	3 years
Higher civic school	Those who have finished primary and civic schools, drop-outs of middle school	3 years
Trade school	Those who have finished primary and civic schools or are qualified as having equivalence	3 years
Higher trade school	Those who have finished higher civic, trade and primary schools or are qualified as having equivalence	3 years
Air and correspondence high school	Middle school graduates and those qualified as having equivalence	3 years
Youth occupational school	No entry requirement, but grade II licensed skilled workers and those with industrial experience of more than one year are given advantages in admission when applicants exceed enrolment quota	3, 6, 9, 12 months
Special classes within industry	Primary school graduates (for middle school course), middle school graduates (for high school course)	3 years each
Private occupational training institutes	No entry requirement	1, 3, 6, 12 months

Table 8. Classification of vocational high schools (1978)

Fields	Daytime	Evening	Both	Total	Male	Female	Coed	Total
Agriculture	61	-	-	61	38	-	23	61
Industry	53	-	37	90	80	1	9	90
Commerce	142	4	56	202	55	104	43	202
Vocational	18	-	2	20	7	6	7	20
Comprehensive	145	-	5	150	39	31	80	150
Fishery and marine	8	-	1	9	6	-	3	9
Arts	4	-	-	4	-	1	3	4
Total	431	4	101	536	225	143	168	536
%	80.4	0.75	18.8	100.0	42.0	26.7	31.3	100.0

Source: The Yearbook of Educational Statistics, Ministry of Education 1978.

Table 9. Classification of higher civic, trade and higher trade schools (1978)

Schools	Daytime	Evening	Both	Total
High civic school	107	14	57	178
Trade school	37	-	13	50
Higher trade school	11	-	24	35
Total	155	14	94	263
%	58.9	5.3	35.8	100.0

Source: Social Education, Ministry of Education, 1978.

Of the total number of these schools, those offering evening classes occupy 41%, much higher than that of vocational high schools.

The air and correspondence high schools place heavier reliance on radio programmes broadcast in the morning and evening. The students are required to attend class instruction twice a month - usually on Sundays. Those completing a three-year course are qualified as regular high school graduates.

The youth occupational schools are short-term programmes offered by middle school and vocational high schools, aimed to prepare youngsters for employment. The government bears the education cost in its totality. In principle, these schools do not pose any entry requirement since their programmes are simply job-oriented and have nothing to do with qualification in terms of educational attainment.

The special classes in industrial firms were created in 1977 to provide the employed youngsters with opportunity to continue schooling. There are 26 special classes, covering the courses of middle school, high school and vocational high school. Those finishing these classes are given qualifications equivalent to the graduates of schools at the respective levels.

In the case of private training institutes, no entry requirement is posed. Analysis of trainee's background indicated, however, that the high school graduates formed the largest proportion of the total enrolment, marking 48.9%, followed by high school drop-outs which accounted for 31.3%. Middle school graduates and primary school graduates plus drop-outs occupied only 13% and 6.87% respectively. From this trend, it may be concluded that the programmes of private institutes are more relevant to the middle school graduates and above that level.

2. Occupational training

(1) Status of occupational training

The occupational training in Korea is defined as "an effort to improve job skills in specific areas in a way that increases productivity".(2) In other words, it refers to a series of training aimed to provide for a timely supply of technical manpower as well as preparing them for changing needs in their respective fields.

(2) HONG, Jong Rae. The Future of Occupational Training in Korea, Technical Manpower, No. 4, Korean Skill Certification, Seoul, 1978, p. 29.

Table 10. Numbers of trainees by school attainment

	No schooling	Primary school drop-outs	Primary school graduates	Middle school drop-outs	Middle school graduates	High school drop-outs	High school graduates	Above	Total
Numbers of trainees	10,263	825	9,421	4,481	34,282	7,694	85,442	145,397	297,805
%	3.4	0.27	3.2	1.5	11.5	2.6	28.7	48.9	100.0

Source: The Yearbook of Educational Statistics, Ministry of Education, 1978, p. 809.

In this respect, the occupational training is distinguished from the educational programme aimed to provide the foundation for training in specific fields. The Occupational Training Law (Article 3-2) stipulates that the former be directly linked to industrial needs by preserving its characteristics distinctive from school education.

The Administration of Labour Affairs is the highest administrative authority for planning, co-ordination, monitoring and administration of occupational training. It formulates occupational training plans within the context of the comprehensive manpower development plan. According to the MOST's projection, manpower requirement in the field of science and technology is expected to reach 1,959,000 or 1.95% of the total population. Of the total requirements, skilled workers and technicians will account for 86.8% (Table 11).

Table 11. Scientific and technological manpower requirements

Classification	Requirements (in thousands)					
	1975	1977	1978	1979	1980	1981
Employed population (A)	11,392	12,579	12,961	13,358	13,769	14,199
Science and technology manpower (B)	1,092	1,353	1,483	1,625	1,783	1,959
Scientists	9	10	11	12	13	14
Engineers	132	164	182	201	222	245
Skilled workers	951	1,179	1,290	1,412	1,548	1,700
B/A	9.2%	10.8%	11.5%	12.2%	12.9%	13.9%

Notes: (1) Scientists mean the faculty members of four-year colleges above full-time lectures and the researchers of research institutions in natural science.

(2) Engineers include technicians as well as engineers in traditional terms.

Since the enactment of the Occupational Training Law in 1967, a total of 587,831 skilled workers have been produced by occupational training programmes until 1978. Detailed statistical data are shown in Table 12.

According to Table 12, in-plant training is largest in scope by producing 357,352 skilled workers or 60.8% of the total, followed by public training programmes, and others which have produced 144,470 (24.6%) and 86,009 (14.6%) respectively.

Table 13 projects the requirement of skilled workers to reach 843,000 in 1981. Looking at the source of supply, technical high schools are the largest supplier of skilled workers, while semi-skilled workers are mainly produced by occupational training programmes.

(2) The objectives of occupational training

Viewed in a broad context, the goal of occupational training is to improve job performance competency which may be considered in terms of character, knowledge and skill in a single vein. Narrowing it down in specific terms, its objectives differ from country to country depending on the emphasis in development policy. In Korea, it has the following objectives:

(1) to train for a new batch of skilled workers necessary for the development of heavy and chemical and construction industries;

(2) to increase the employability of unskilled persons in productive work;

(3) to develop new skills that will improve the nation's capacity for technological advantage among nations; and

(4) to support the vertical mobility of skilled workers and their contribution to the nation's economic development.

The scope of occupational training also varies according to the kind of organizations that offer training. They may be classified as follows:

(National or public training institutes)

The occupational training of the government agencies, local autonomies and juridical bodies span a wide spectrum of courses for foundation building, improvement of job performance skill and acquiring of new knowledge and skills either for job transfer or for higher productivity.

(In-plant training)

The in-plant occupational training programmes are largely oriented toward upgrading skill levels of employees and therefore necessitate a series of retraining in response to new needs.

(Other occupational training institutes)

Other occupational training institutes mean non-profit organizations other than juridical bodies, authorized by the Administration of Labour Affairs, to provide short-term occupational training.

Table 12. Skilled workers produced by occupational training

	Total	67	68	69	70	71	72	73	74	75	76	77	78
Total	587,831	5,392	15,115	18,405	25,323	30,551	27,525	39,851	41,310	75,254	125,653	83,027	100,425
Public institution	144,470 (24.6)	6,309	6,[illegible]9	8,419	7,177	8,833	9,918	16,234	16,355	17,480	18,164	14,878	19,201
Juridical body	27,871			167	319	605	678	1,174	2,016	2,999	4,243	5,589	10,041
Govnt. agencies	63,651	1,502	1,363	3,291	3,118	3,443	3,893	5,164	8,757	10,240	11,445	7,468	3,967
Local autonomy	52,968		4,946	4,961	3,740	4,785	5,341	9,896	5,492	4,241	2,476	1,871	5,193
In-plant training	357,352 (60.8)	3,890	8,022	8,527	13,483	14,303	10,799	14,124	12,940	42,667	96,820	58,789	3,038
Others	86,009 (14.6)		784	1,459	4,663	7,415	6,808	9,493	12,015	15,107	10,669	9,410	8,186

Source: Status of Occupational Training Programmes, Office of Labour Affairs, 1978.

Table 13. Demand and supply of skilled workers

(in thousands)

		Total	1977	1978	1979	1980	1981
Demand	Total (100%)	843	1,179 158	1,290 147	1,412 161	1,548 179	1,700 198
	Grade II skilled workers (33%)	280	49	48	54	61	6
	Semi-skilled workers (33%)	280	49	48	54	61	68
	Simple line workers (34%)	283	60	51	53	57	62
Supply	Grade II skilled workers						
	Technical high school	259	49	52	52	53	53
	Occupational training	77	14	15	15	16	17
	Subtotal	336	63	67	67	69	70
	+, -	▽ 56	▽ 14	▽ 19	▽ 13	▽ 8	▽ 2
	Semi-skilled workers						
	Occupational training	355	59	54	72	79	81
	+, -	▽ 75	▽ 10	▽ 6	▽ 18	▽ 18	▽ 13
	Simple line workers						
	In-plant training	283	60	51	53	57	62

(3) Contents of occupational training programmes

(1) Kinds and target audience

The occupational training programmes, according to their target audience, are divided into two kinds - instructor training and skilled worker training. The former again breaks down into pre-service, licence and refresher courses and the latter into basic, upgrading, transfer and refresher courses (see Diagram 1).

The contents and target audience of occupational training programmes are illustrated in Table 14. The basic course produces grade II skilled workers and assistant skilled workers, whose durations range from three months to three years. Primary education is the minimum requirement for entry, with the age bracket of trainees ranging from 14 to 25, but the course for grade II skilled workers requires the completion of middle school education.

The upgrading course provides exposure to knowledge and skills that are needed for promotion to higher positions. This course trains for grade I and grade II skilled workers, with duration ranging from one to three months.

The refresher course aims at enabling skilled workers and semi-skilled workers to keep up with changing technologies.

The transfer course prepares trainees for different job situations in the same field by familiarizing them with necessary skills. The target audience again includes skilled workers and semi-skilled workers in the fields similar or related to the jobs which they are to be transferred to.

Diagram 1. Types of occupational training

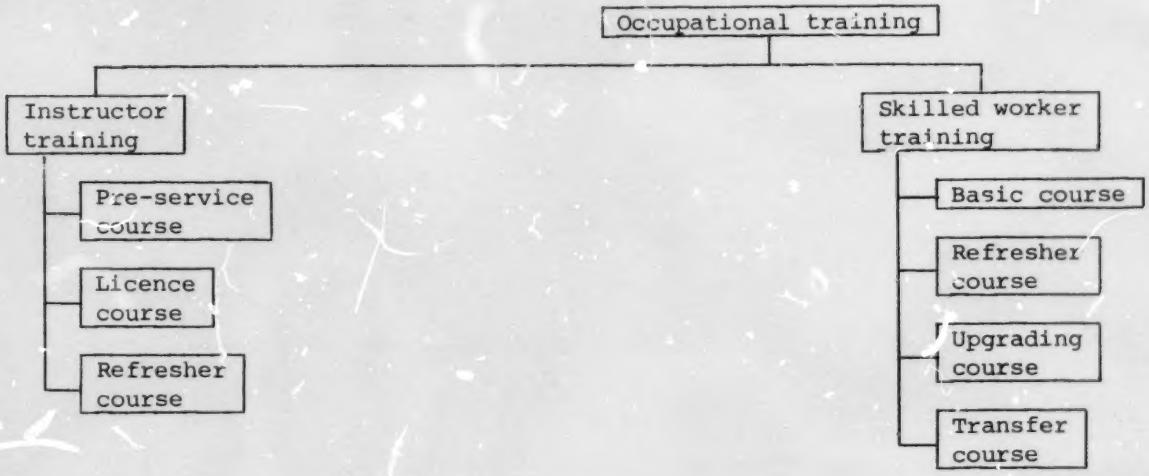


Table 14. Contents and target audience

Courses	Contents	Goals	Duration	Target audience
Basic course	Essential knowledge and skills necessary to work as a skilled worker or semi-skilled worker	Grade II skilled worker Semi-skilled worker	1-3 years 3 months-1 year	1. Middle school graduates 2. Age bracket 24-25 Primary school graduates falling in the same age bracket
Upgrading course	Knowledge and skills needed in the next higher position	Grade II skilled worker Grade II skilled worker	1-3 months 1-3 months	Grade II skilled workers Semi-skilled workers
Refresher course	New knowledge and skills generated by technological innovations as related to the respective field	Respective positions	1-4 months	Above semi-skilled workers
Transfer course	Knowledge and skill required for transfer to other job	Respective positions	1-3 months	Above semi-skilled workers

There are 275 kinds of occupational training at present which cover 17 fields (see Table 15). The kind of occupational training shows the largest numbers in metallic processing, metallic materials, electricity, electronics and heavy industries. This trend is accounted for by greater emphasis on the development of heavy and chemical industries.

Table 15. The kinds of occupational training by field

Fields	Kinds	Fields	Kinds
1. Industrial material	23	10. Ceramic manufacturing	6
2. Metallic processing	30	11. Graphic arts and printing	7
3. Transportation and construction equipment	24	12. Industrial engineering	21
4. Electrical work	22	13. Food manufacturing	13
5. Electronics and communication	23	14. Point coating	4
6. Textile	25	15. Leather crafts	3
7. Construction	24	16. Mining	9
8. Carpentry	3	17. Others	18
9. Chemical products manufacturing	20	Total	275

(2) Curriculum

The curriculum of basic courses is divided into three areas - general subjects, specialized subjects and practice (see Table 16). Theory and practice are woven into a curriculum in the ratio of 20 vs. 80 in favour of the latter.

Table 16. Curriculum of basic courses

Areas	Characteristics	Subjects	Ratio to total credit requirement (%)
General subjects	General knowledge required for daily living	Social studies and physical education	4.3
Specialized subjects	Concepts and principles needed in the respective fields	Common and special theories	15.7
Practice	Necessary skills	Practice of skills, basic, specialized and comprehensive	80.0

Source: Occupational Training Law.

General subjects, comprising social studies and physical education, occupy only 4% of the total credit requirement, with much the larger part of the curriculum devoted to specialized subjects and practice. Social studies include the law pertinent to labour affairs, education for national security, and Saemaul education.

The curriculum of each course is subject to approval by the Administration of Labour Affairs.

The varying duration of occupational training courses is represented by the number of hours as follows:

Table 17. The number of hours for duration

Duration	Number of hours
One week	40 hours
Three months	450 hours
One year	1,500 hours

One-week duration means 40 hours, averaged at 6.6 hours per day, Monday through Saturday. Three-month training requires completion of 450 hours and one year comprises 1,800 hours. The number of hours can be adjusted within the range of 30% depending on the unique situation of each training institute.

(3) Training materials

The textbooks of occupational training are developed by the Administration of Labour Affairs. In case of the textbooks of major subjects, a separate development plan is conceived because of their rapidly increasing demands. Two hundred and fifty one kinds of textbooks have been developed, of which those of major subjects occupy 42.3% as shown in Table 18. The kind of textbooks and materials will increase to 704 in number, with the work guides accounting for 54% of it. This reflects greater emphasis laid on practice in the occupational training.

Table 18. Material development plan

Classification	Present requirements			Future requirements after 1979
	Total	Already developed	1979	
Total	1,302	251	347	704 (100.0)
Common theory	125	64 (25.5)	61	-
Specialized theory	543	106 (42.3)	111	326 (46.3)
Work guide	634	81 (32.1)	175	378 (53.7)

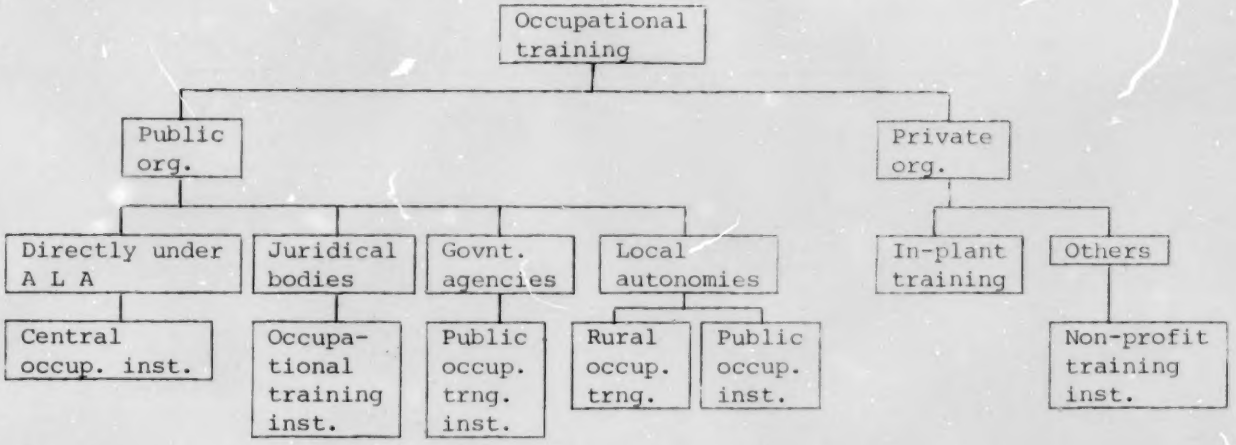
Source: Status of Occupational Training, Administration of Labour Affairs, 1978.

(4) The organizations of occupational training

(1) Increase in number

The organizations of occupational training are divided into two categories - public and private - according to ownership (see Diagram 2). The public organizations are established by the government agencies and local autonomies. Specially, those established by the Administration of Labour Affairs take the lion's share.

Diagram 2. Occupational training system



The private organizations include in-plant training institutes and non-profit training institutes. The law provides that the employers of more than 300 employees should offer occupational training to upgrade the job performance skills of them. Included in this category are non-profit organizations such as the juridical body of social welfare. When they offer occupational training, approval should be obtained from the Ministry of Health and Social Affairs.

Table 19. Increasing trend of occupational training organizations

		1969	1970	1971	1972	1973	1974	1975	1976	1977
Organization	Public	84	105	105	97	87	88	109	80	79
	Private	49	53	59	45	88	78	279	476	519
	Total	133	158	164	142	175	166	388	556	670
Kind	Public	59	75	87	161	148	176	156	119	48
	Private	56	70	81	70	123	129	146	184	186
	Total	115	145	168	231	271	305	302	303	234

Table 19 shows the quantitative development trend of occupational training organizations. As a whole, the number of them has increased above five times during the period of 1969-1977 and this trend is indicative of the growing

importance attached to occupational training. A marked increase is also noticed in the kind of occupational training, showing that the scope of areas covered has increased with a growing complexity.

To begin with, the occupational training was initiated by the government and local autonomies. In 1969, the public occupational organizations accounted for 64% of the total. But the growing demand for skilled manpower reveals the limitations of the public organizations, leading the government to enacting a legal provision which held industrial firms responsible for occupational training when they meet certain criteria. As a result, the number of private occupational organizations increased seven times over the same period and they presently account for 78% of the total. Their programme has been more diversified and the kind of programme quadrupled in number. As the government increases its support for the upgrading of quality, the private organizations will constitute a main source of supplying skilled workers.

(2) Training cost

In principle, training cost is born by the organizations of occupational training (Occupational Law 10). But the law makes it possible to charge part of the cost on trainees upon the approval of the Administration of Labour Affairs when circumstance necessitates. The government is held responsible for providing subsidy to organizations engaged in occupational training and related activities.

The guiding principles of bearing training costs are summarized as follows:

Firstly, the law stipulates that the government bear the cost of training in its entirety by public organizations and allowance for trainees. When it is inevitable to charge part of the cost on trainees, approval should be obtained from the Administration of Labour Affairs.

Secondly, the employer should be responsible for financing the training of his employees when it is offered within the firm. The training of employees should be counted as an extension of regular works, for which they are duly paid. The law makes it mandatory for the employers of more than 300 employees to offer occupational training for 10% of the total employment each year. When training is impossible, the employer is obligated to pay his share to contribute to the fund for the development of occupational training. Another alternative is to entrust training to organizations capable of conducting it by paying a certain proportion of the cost.

Thirdly, the non-profit or charity organizations, in principle, do not charge training costs on the beneficiaries. When it is inevitable to do so, approval should be obtained from the Administration of Labour Affairs.

The training cost per person estimated by the Administration of Labour Affairs, is shown in Table 20. It includes remuneration, practice fee, programme development expenditure, facilities and equipment expenditure and operational cost. The cost of occupational training appears to be higher than that of the other training. Including allowance for trainees, the cost of training by private organizations amounts to higher.

Table 20. Training cost per person per year

Public organization	Private organization	Voluntary organization
372,292 won	270,510 won	270,510 won

Note: Allowance for trainee is excluded.

(3) Evening programmes

There are no data available to provide clarification on the status of evening programmes. It seems, however, that most institutes offer programmes during daytime. Recently, only a few of them have conducted residential training by providing accommodation during the training session. The fact that the employed youngsters are the potential beneficiaries of occupational training argues well for the need to provide this opportunity to the largest numbers of target audiences. The government is now promoting the formulation of policy along the line of strengthening evening programmes.

III. NATIONAL SKILL CERTIFICATION SYSTEM

Before the enactment of the law pertaining to skill certification in 1973, there had been no standard performance criteria and the certification examination had hardly maintained relationship with technical education and occupational training programmes. Much less is its relationship with industrial needs. In the policy dimension, no provision was made for systematic incentive measures for those aspiring to pursue vocational education. In particular, the absence of an institute exclusively responsible for R&D activities accounted for the backwardness of skill certification system.

Realizing the importance of skill certification system as a means of stimulating human resources development, efforts were made to incorporate the then existent practices into a single system. As an initial step, a legal provision was enacted in 1973 to provide for a more systematic and efficient implementation of skill certification. In 1976, an institute exclusively responsible for R&D activities called "Korean Skill Certification Corporation" came into being.

1. The objectives of national skill certification system

In simple terms, the national certification system is a means of qualifying those who have reached certain stages of proficiency in skills as technicians or skilled workers of differentiated levels.

The specific objectives of the system are:

(i) to improve the quality of technicians and skills, thus enhancing its accountability;

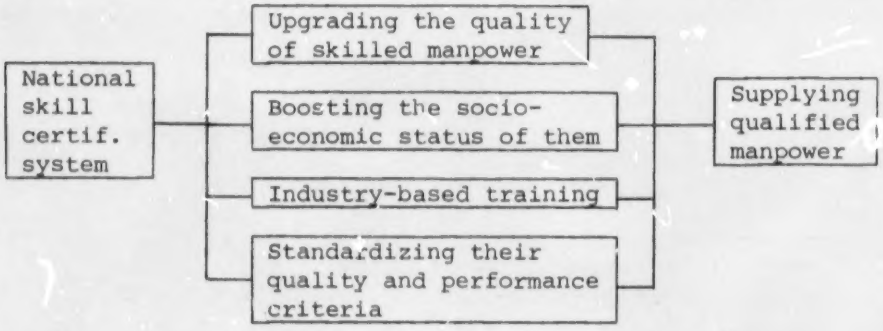
(ii) to enhance the socio-economic status of skilled workers;

(iii) to promote the development of industry-based training; and

(iv) to standardize qualification grading and performance criteria.

From a long-term perspective, this system is eventually aimed to root out the social norms of despising skill works and create a social climate highly supportive of their development (see Diagram 3).

Diagram 3. National skill certification system - objectives

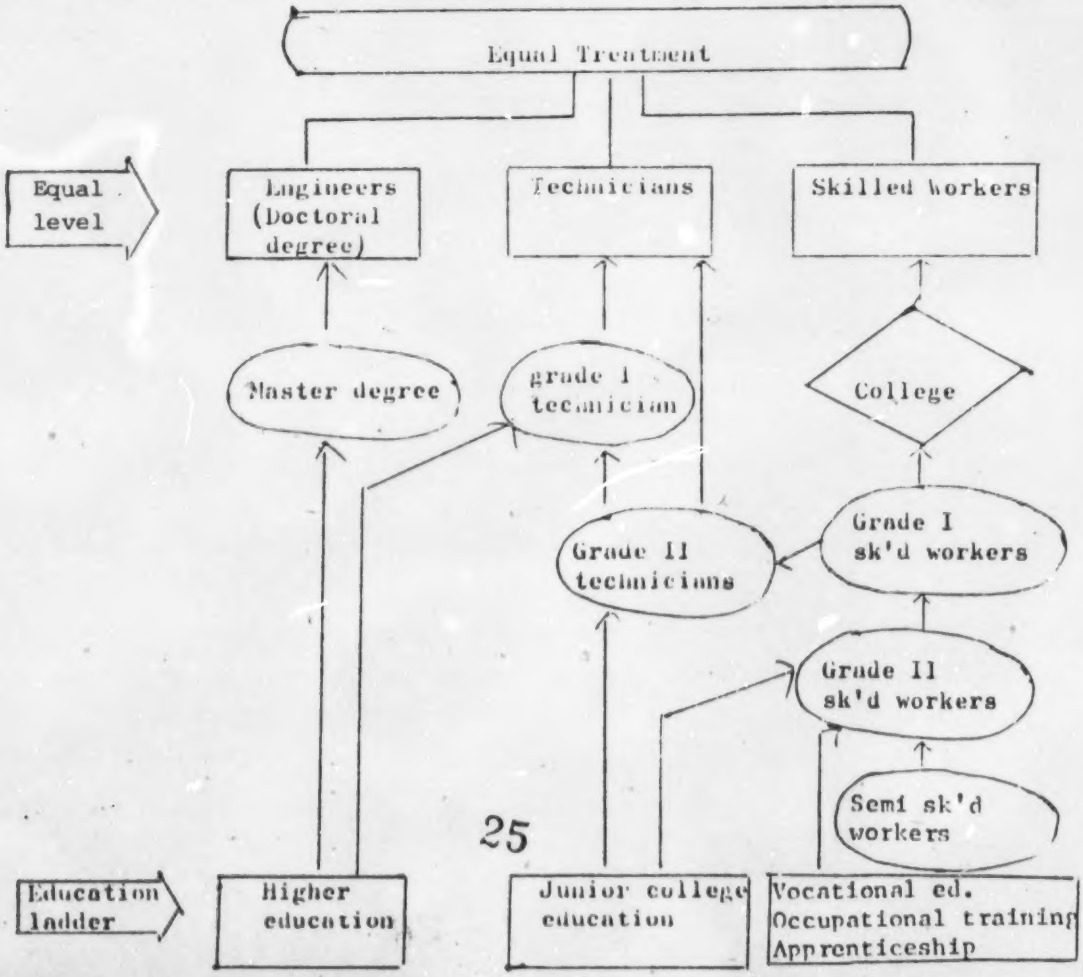

National skill certif. system
Upgrading the quality of skilled manpower
Boosting the socio-economic status of them
Industry-based training
Standardizing their quality and performance criteria
Supplying qualified manpower

2. The structure of national skill certification system

(1) Structure

According to the skill level dealt with, the national skill certification system is broadly divided into two components - technicians and skilled workers. The former break down into three grades and the latter into four grades.

Diagram 4. Basic structure of the national skill certification system



As seen in Diagram 4, there are three categories of skilled manpower - engineers, technicians and skilled workers. The highest level of each category deserves the same treatment. That is, the top-notch of technicians and skilled workers are on a par with the highest position of engineers - doctoral degree. Looking at the lowest level, entry requirement varies: engineers are college graduates and technicians are junior college graduates, while entry requirement for skilled workers is the completion of vocational high schools or occupational training.

(2) Criteria of national skill certification system

Master skilled worker, the highest level of skilled workers, should be capable of working as a production manager and superviser, with more than seven years of experience as a grade I skilled worker. It requires completion of a retraining course designated by the Ministry of Science and Technology.

Grade I skilled worker should have proficiency in applied production skill, equipment operation and maintenance, and quality inspection that will enable him to play a leading role. He should meet the following requirements:

(i) more than three years of experience as grade II skilled worker;

(ii) completion of junior colleges or vocational high schools;

(iii) completion of two-year course offered by the Korean Precision Machinery Centre;

(iv) completion of other courses designated by the Ministry of Science and Technology;

Grade II skilled worker should have proficiency in production skill, equipment operation and maintenance, and quality inspection. He should meet the following requirements:

(i) certified semi-skilled worker;

(ii) completion of at least two years of vocational high school education;

(iii) completion of academic high school;

(iv) completion of more than 1,800 hours of occupational training;

(v) completion of training courses designated by the Ministry of Science and Education.

Semi-skilled worker should be able to carry out production works under the supervision of skilled workers. His role is to assist skilled workers. No entry requirement is imposed in terms of school attainment.

Head technician requires a higher degree of knowledge and skill proficiency to carry forward planning, research, analysis, testing, operation, designing and supervisory role as related to these functions. He should meet the following requirements:

(i) more than seven years of experience as grade I te hnician;

(ii) more than nine years of experience as grade II technician;

(iii) more than seven years of experience after the graduation from college or more than nine years of experience after the graduation from junior colleges and vocational high schools.

Grade I technician requires basic engineering theory and applied skills with the following requirements:

(i) more than two years of experience as grade II technician;

(ii) graduation from engineering college;

(iii) more than two years of experience as a graduate of junior college or vocational high school.

Grade II technician requires basis skill theory and applied skill with the following requirements:

(i) certified master or grade I skilled worker;

(ii) graduation from junior college or vocational high school;

(iii) completion of two-year course at Korean Precision Machinery Centre;

(iv) completion of other occupational training, designated by the Ministry of Science and Technology.

(3) Testing methods

The testing methods used for certification vary from grade to grade (see Table 21).

Table 21. Testing methods

	Grades	Testing method	No. of test items	Hours passing
Skilled worker	Grade I	Written test, multiple choice	60	60 mins.
	Grade II	Skill test, actual work	-	5-8 hrs. 60%
	Semi-skilled	" " "	-	3 hrs. Mastery level
	Master	Experience Interview -	-	
Technician	Grade II	Written, multiple choice and skill test	50	100 mins. 60%
	Grade I	Written "	"	" "
	Master	Experience " and written	"	"

Source: Guide to National Skill Certification, Korean Skill Certification Corporation, 1978.

The written test is in the form of multiple choice, covering technological terms, theoretical foundation and computation ability. Skill test requires actual performance of skills using tools and machines. The testing of master skilled workers is based on a special deliberation of experiences according to the criteria set forth by law, and interview is conducted as a means of providing additional insight into professional competency and character.

3. Numbers of fields and certifications

The total number of certifications for technicians and skilled workers is 756 as of 1978. At the technician level, there are 200 kinds of certification in 19 fields. This number rises to 556 in 12 fields at the skilled worker level. The largest number of certifications is shown in grade II skilled workers, which marks 170.

Table 22. Numbers of field and certification

Levels	Fields	Grades	Certifications
Technicians	19	Master technician	86
		Grade I	62
		Grade II	52
		Subtotal	200
Skilled workers	12	Master skilled	90
		Grade I	162
		Grade II	170
		Semi-skilled	134
		Subtotal	556
Total			756

Looking at Table 22, it can be readily noticed that the industrial structure in Korea is much of a pyramid form, showing a much more variety of works available for skilled workers.

The number of certifications is presented by field in Table 23.

Machine industry shows the largest number of certifications with 159, which account for 21.0% of the total, followed by applied industry (126), chemical engineering (68), architectural engineering (62), metal (57), textile (44) and electricity (33). The ordering of fields by the number of certifications places machine, chemical and electricity industries among the highest ranks, indicating that the national certification system reflects the national policy laying special emphasis on heavy and chemical industries.

(1) Government agencies in the national skill certification system

The national skill certification system functionally interrelates government agencies concerned with its various aspects as schematically presented in Diagram 5.

There are 15 government agencies that administer certification tests in their respective areas as delegated by the National Skill Certification Corporation. The Corporation is responsible for compiling test items, scoring the results and publicizing the successful applicants. Registration of certified personnel is made by the government agencies and intimated to the Corporation.

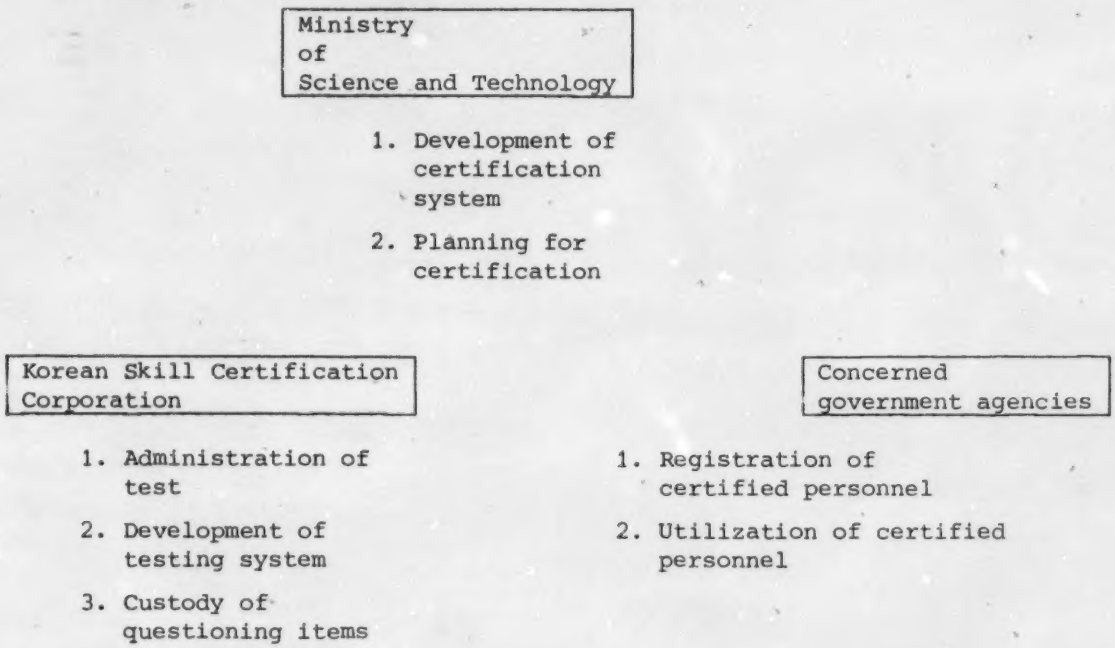
(2) Skill certification test

The skill certification test is divided into written and skill tests which had been administered separately until 1973. It was after 1974 that the successful examinees at the written test were permitted to take the skill test.

Table 23. Number of certifications by field

Fields	Skilled workers				Technicians					Total
	Master	Grade I	Grade II	Subtotal	Master	Grade I	Grade II	Semi-skilled	Subtotal	
1. Machine	8	9	9	26	18	41	41	33	133	159
2. Metallic	5	1	1	7	10	14	14	12	50	57
3. Chemical eng.	9	4	3	16	9	15	16	12	52	68
4. Electricity	4	2	3	9	3	7	6	8	24	33
5. Electronics	4	2	2	8	1	3	3	2	9	17
6. Communication	1	3	3	7	2	4	10	5	21	28
7. Shipbuilding	4	2	1	7	4	6	6	4	20	27
8. Aviation	3	1	1	5						5
9. Civil engineering	10	1	1	12	7	9	9	6	31	43
10. Architect	3	3	1	7	8	16	16	15	55	62
11. Textile	5	2	2	9	6	10	10	9	35	44
12. Mining	3	1	1	5	2	8	9	6	25	30
13. Information	3	1	1	5						5
14. Energy dev.	2	2	1	5						5
15. Land reclamation	5	5	4	14						14
16. Oceanography	1	3	2	6						6
17. Safety management	5	8	6	19						19
18. Production manag.	3	3	2	8						8
19. Applied industry	8	9	8	25	20	29	30	22	101	126
Total	86	62	52	200	90	162	170	134	556	756

Diagram 5. Interrelation of government agencies in skill certification


Ministry of Science and Technology
1. Development of certification system
2. Planning for certification
Korean Skill Certification Corporation
1. Administration of test
2. Development of testing system
3. Custody of questioning items
Concerned government agencies
1. Registration of certified personnel
2. Utilization of certified personnel

Looking at the passing trend over the period 1967-1977, the total successful examinees at written tests numbered 142,677, which accounted for 42% of 336,652 applicants. Those who passed skill tests numbered 489,605 which accounted for 37.6% of 1,300,000 applicants.

The passing trend during the same period was found to vary from grade to grade. The higher the grade, the less passed. While the applicants have increased in number, the percentage of the successful examinees has been on a diminishing trend. This trend is ascribable not so much to the validity of test but to its orientation toward the quality improvement of skilled workers.

The skill certification test is also of two types - compulsory and optional. It is mandatory for those completing technical high schools and occupational training programmes to take the skill certification test, whereas those from other sources than these are given optional choice. The passing ratio is much higher in the former and this trend is partially attributed to the practice of basing testing questions on the curriculum of technical high schools and occupational programmes. In this sense, efforts are made to analyse problems and grope for solutions thereto.

4. Incentives to certified workers

In order to create the social climate supportive of skilled workers, some incentive measures are provided to those who pass the certification test. They may be considered in the following dimensions.

(1) Legal provision

Legal provision is made for a decent treatment of certified skilled workers by stipulating "the government and local autonomies shall take measures as appropriate to enhance the socio-economic status of certified skilled workers and to increase

Table 24. Passing trend of skill certification test

		1967		1968		1969		1970		1971		1972		1973	
		Passing	%	Passing	%	Passing	%	Passing	%	Passing	%	Passing	%	Passing	%
Grade I	Written	-	-	117 (212)	55.2	192 (634)	30.3	355 (1,312)	27.1	566 (1,380)	41.0	299 (1,460)	20.5	569 (1,343)	42.4
	Skill	-	-	559 (219)	26.9	743 (2,154)	34.5	1,245 (2,971)	41.9	909 (2,266)	40.1	703 (1,786)	39.4	1,008 (2,992)	33.7
Grade II	Written	1,754 (2,646)	66.3	1,240 (1,800)	68.9	941 (1,949)	48.3	2,129 (4,373)	48.7	2,270 (7,138)	38.8	1,676 (5,767)	29.1	2,492 (8,275)	30.1
	Skill	434 (1,407)	30.8	1,379 (3,328)	41.4	2,896 (9,853)	29.4	2,895 (8,433)	34.3	2,808 (9,394)	29.9	2,078 (7,635)	27.2	3,198 (12,696)	25.2
Assist-ant	Written														
	Skill			2,087 (4,792)	43.6	5,517 (9,504)	58.0	8,110 (15,962)	50.8	19,068 (36,414)	52.4	17,530 (34,252)	51.2	34,733 (69,577)	49.9
Total	Written	1,754 (2,646)	66.3	1,357 (2,012)	67.4	1,133 (2,583)	43.9	2,484 (5,685)	43.7	3,336 (8,518)	39.2	1,975 (7,227)	27.3	3,061 (9,618)	31.8
	Skill	434 (1,407)	30.8	3,525 (8,339)	42.3	9,156 (21,511)	42.6	12,250 (27,366)	44.8	22,785 (48,074)	47.4	20,311 (43,673)	46.5	38,939 (85,265)	45.7

		1974		1975		1976		1977		Total	
		Passing	%	Passing	%	Passing	%	Passing	%	Passing	%
Grade I	Written	1,132 (2,776)	40.8	1,400 (3,441)	40.7	1,617 (3,971)	40.7	1,549 (5,152)	30.0	7,796 (21,681)	36.0
	Skill	2,414 (7,890)	30.6	355 (3,479)	10.2	1,072 (32,546)	10.2	883 (35,182)	2.5	9,391 (91,485)	10.3
Grade II	Written	6,374 (16,502)	38.6	24,896 (56,501)	44.1	48,558 (91,829)	52.9	41,132 (115,495)	35.6	133,962 (312,275)	42.9
	Skill	9,838 (38,918)	25.3	8,898 (56,630)	15.7	14,916 (83,853)	17.8	16,372 (80,095)	20.4	65,712 (312,242)	21.0
Assist-ant	Written	919 (2,696)	34.1	-	-	-	-	-	-	919 (2,696)	34.1
	Skill	67,397 (150,020)	44.9	28,899 (54,757)	52.8	126,429 (284,699)	44.4	104,732 (238,297)	44.0	414,502 (898,274)	46.1
Total	Written	8,425 (21,974)	38.3	26,296 (59,942)	43.0	50,175 (95,800)	52.4	42,681 (120,647)	35.4	142,677 (336,652)	42.4
	Skill	79,649 (196,828)	40.5	38,152 (114,866)	33.2	142,417 (401,098)	35.5	121,987 (353,574)	34.5	489,605 (1,302,001)	37.6

the possibility of their employment and job security (National Skill Certification Law 10-1). The implementation order pertinent to the law provides for preferential treatment of certified skilled workers in remuneration, promotion, transfer and recruitment.

Article 10-2 holds the government and local autonomies responsible for exercising administration in the best interest of those engaged in their own business.

Their preferential treatment is also provided in the implementation order pertinent to public servants appointment procedure and military service. In the latter case, the certified skilled workers in defence industries are exempted from military draft.

(2) Other incentives

The preferential treatment of certified skilled workers may be considered in societal and individual dimensions. In the first place, industrial firms tend personnel management with priority attention to them as reflected in recruitment, remuneration, promotion and transfer. In particular, the incentive measure related to education merits special attention. The grade II skilled workers are granted an opportunity for admission to colleges of respective fields, while grade II technicians are entitled to transfer into colleges of respective fields.

IV. SUGGESTED DIRECTION OF VOCATIONAL EDUCATION AND TRAINING

As mentioned earlier, the widespread recognition of the importance of vocational education and training triggered the drive to streamline their systems and provide higher quality programmes.

With regard to the relevance of vocational education and training programmes, an extensive study(3) was conducted for 50 industrial firms involving 437 employees. This study identified problems and, on this basis, evolved the direction of educational or training efforts, which may be outlined as follows:

(i) the present educational and training programmes lack relevance to industrial needs. Efforts should be made to enhance their relevance by placing greater emphasis on skill practice relative to industrial needs;

(ii) the present educational and training programmes should provide access to industrial experience for at least one year before their termination. This process is necessary to improve specific job performance skills required on the working site;

(iii) the occupational training at present is primarily concerned with providing the foundation for adaptation to different job requirements mainly to middle school graduates. The scope of training should be enlarged to cover a wider spectrum of educational backgrounds. Specially, an urgent need is developing for programmes to improve the utility of high school graduates in productive works;

(iv) the skill certification test should be improved toward a more valid and standardized one that has higher relevance to industrial needs. There is a tendency of basing evaluation criteria on the curriculum of vocational

(3) TAI, Kim Yoon. Study on the Relevance of Technical Education and Training in Korea, Korean Educational Development Institute, 1976.

high schools or occupational training programmes, with little regard to what is to be needed on the working site. This practice is the result of prime concern when preparing students or trainees for the certification examination that they have to pass before graduation. There is a wide gap between what is taught and what is expected of them by industry;

(v) the youngsters completing or dropping out of primary cycle should be given more opportunities for occupational training. The main stream of clientele of occupational training is middle schools, leaving a significant segment of the under-educated to drift with stunted hope for the future. If this trend is left to go its own way, the nation will experience a serious dead loss of human resource.